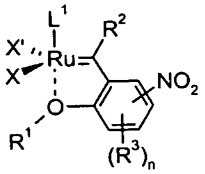
CLAIMS

We Claim:

1. A compound of the formula **1**,



1

wherein

L^1 is a neutral ligand;

X and X' are anionic ligands;

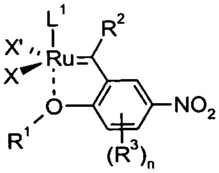
R^1 is $-C_{1-5}$-alkyl or $-C_{5-6}$-cycloalkyl;

R^2 is H, $-C_{1-20}$-alkyl, $-C_{2-20}$-alkenyl, $-C_{2-20}$-alkynyl or aryl;

R^3 is $-C_{1-6}$-alkyl, $-C_{1-6}$-alkoxy or aryl, wherein aryl is optionally substituted with $-C_{1-6}$-alkyl or $-C_{1-6}$-alkoxy; and

n is 0, 1, 2 or 3.

2. A compound according to claim 1 of the formula **1a**,



1a

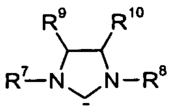
wherein L^1, X, X', R^1, R^2, R^3 and n are defined as in claim 1.

3. A compound according to claim 1, wherein

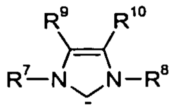
L^1 is $P(R^{11})_3$;

R^{11} are each independently $-C_{1-6}$-alkyl, $-C_{3-8}$-cycloalkyl or aryl;

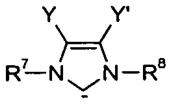
or L^1 is a ligand of formula **6a, 6b, 6c** or **6d**;



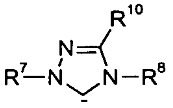
6a



6b



6c



6d

R^7 and R^8 are each independently H, -$C_{1\text{-}20}$-alkyl, -$C_{2\text{-}20}$-alkenyl or phenyl, wherein the phenyl is optionally substituted with up to three groups independently selected from -$C_{1\text{-}6}$-alkyl, -$C_{1\text{-}6}$-alkoxy or halogen;

R^9 and R^{10} are each independently H, -$C_{1\text{-}20}$-alkyl, -$C_{2\text{-}20}$-alkenyl or phenyl, wherein the phenyl is optionally substituted with up to three groups independently selected from -$C_{1\text{-}6}$-alkyl, -$C_{1\text{-}6}$-alkoxy or halogen; or

R^9 and R^{10} together with the carbon atoms to which they are attached are combined to form an carbocyclic 3 to 8 membered ring;

Y and Y' are halogen.

4. A compound according to claim 3 wherein

R^7 and R^8 are each independently H, -$C_{1\text{-}6}$-alkyl, -$C_{2\text{-}6}$-alkenyl or phenyl, wherein the phenyl is optionally substituted with up to three groups independently selected from -$C_{1\text{-}6}$-alkyl, -$C_{1\text{-}6}$-alkoxy or halogen;

R^9 and R^{10} are each independently H, -$C_{1\text{-}6}$-alkyl, -$C_{2\text{-}6}$-alkenyl or phenyl, wherein the phenyl is optionally substituted with up to three groups independently selected from -$C_{1\text{-}6}$-alkyl, -$C_{1\text{-}6}$-alkoxy or halogen; or

R^9 and R^{10} together with the carbon atoms to which they are attached are combined to form an carbocyclic 5 to 7 membered ring.

5. A compound according to claim 1 wherein

R^2 is H, -$C_{1\text{-}6}$-alkyl or aryl; and

X and X' are halogen.

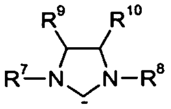
6. A compound according to claim 3 wherein
L^1 is P(Cy)$_3$ or a ligand of formula **6a, 6b, 6c** or **6d**;
Cy is cyclohexyl; and
X and X' are each chlorine.

7. A compound according to claim 3 wherein
L^1 is a ligand of formula **6a, 6b, 6c** or **6d**; and
R^7 and R^8 are 2-methylphenyl, 2, 6-dimethylphenyl or 2, 4, 6-trimethylphenyl.

8. A compound according to claim 1 wherein
n is 0.

9. A compound according to claim 1 wherein
R^1 is isopropyl; and
R^2 is H.

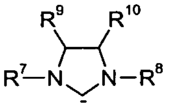
10. A compound according to claim 1, wherein:
R^1 is isopropyl;
R^2 is H;
n is 0;
X and X' are each chlorine; and
L^1 is a ligand of formula 6a:



6a

wherein R^7 and R^8 are each 2,4,6-trimethylphenyl; and
R^9 and R^{10} are each H.

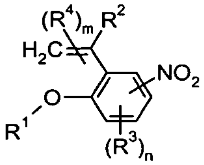
11. A compound according to claim 2, wherein:
R^1 is isopropyl;
R^2 is H;
n is 0;
X and X' are each chlorine; and
L^1 is a ligand of formula 6a:



6a

wherein R^7 and R^8 are each 2,4,6-trimethylphenyl; and
R^9 and R^{10} are each H.

12. A compound of formula **2**,

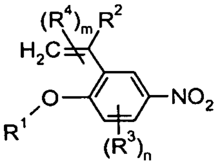


2

wherein
R^1 is -C_{1-5}-alkyl or -C_{5-6}-cycloalkyl;
R^2 is H, -C_{1-20}-alkyl, -C_{2-20}-alkenyl, -C_{2-20}-alkynyl or aryl;
R^3 is -C_{1-6}-alkyl, -C_{1-6}-alkoxy or aryl, wherein aryl is optionally substituted with -C_{1-6}-alkyl or -C_{1-6}-alkoxy;

R^4 is -C_{1-20}-alkyl;
m is 0, 1 or 2; and
n is 0, 1, 2 or 3.

13. A compound according to claim 12 of formula **2a**,



2a

wherein R^1, R^2, R^3, R^4, m and n are defined as in claim 12.

14. A compound according to claim 12 wherein
R^2 is H, -C_{1-6}-alkyl or aryl;
R^4 is -C_{1-6}-alkyl; and
m is 0 or 1.

15. A compound according to claim 12 wherein
R^4 is methyl or ethyl; and
n is 0.

16. A compound according to claim 12 wherein
R^1 is isopropyl;
R^2 is H;
m is 0.

17. A compound of formula **2** according to claim 12, wherein:

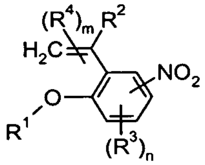
R^1 is isopropyl;
R^2 is H;
m is 0; and
n is 0.

18. A compound of formula **2a** according to claim 13, wherein:

R^1 is isopropyl;
R^2 is H;
m is 0; and
n is 0.

19. A process for manufacturing a compound of formula **1** according to claim 1, comprising:

(a) reacting a compound of formula **2**:

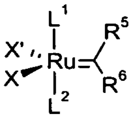


2

wherein

R^1 is $-C_{1-5}$-alkyl or $-C_{5-6}$-cycloalkyl;
R^2 is H, $-C_{1-20}$-alkyl, $-C_{2-20}$-alkenyl, $-C_{2-20}$-alkynyl or aryl;
R^3 is $-C_{1-6}$-alkyl, $-C_{1-6}$-alkoxy or aryl, wherein aryl is optionally substituted with $-C_{1-6}$-alkyl or $-C_{1-6}$-alkoxy;
R^4 is $-C_{1-20}$-alkyl;
m is 0, 1 or 2; and
n is 0, 1, 2 or 3;

with a ruthenium complex of formula **5**:



5

wherein

L^1 and L^2 are neutral ligands;

R^5 is H, $-C_{1-20}$-alkyl, $-C_{2-20}$-alkenyl, $-C_{2-20}$-alkynyl or aryl;

R^6 is aryl, vinyl or allenyl; and

X and X' are anionic ligands;

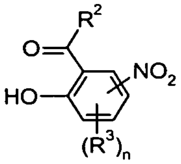
to obtain a compound of formula **1** according to claim 1; and

(b) optionally reacting said compound of formula **1** obtained in step (a) with a different neutral ligand L^1 to replace the neutral ligand L^1 in said compound of formula **1** obtain a different compound of formula **1**.

20. A process according to claim 19 wherein the process is carried out in the presence of a copper salt.

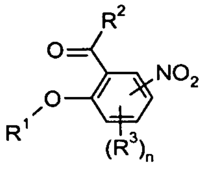
21. A process for manufacturing an intermediate of formula **2** according to claim 12, which process comprises the steps of:

a) alkylating a compound of formula **3**,



3

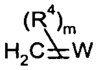
with a reagent of formula R^1Z (**9**) to form an intermediate of formula **4**,



4

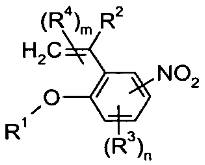
and

b) reacting the intermediate of formula **4** with an olefination reagent of formula **10**:



10

to obtain a compound of formula **2**:



2

wherein R^1, R^2, R^3, R^4, m and n are as defined in claim 12;

W is a leaving group suitable for olefination reactions; and

Z is halogen, C_{1-6}-alkyl-$S(O)_2$-, C_{1-6}-fluoroalkyl-$S(O)_2$-, aryl-$S(O)_2$- or aryl-$S(O)_3$-.